TABLE 21

Sample No.	AUL Value (g/g) 0 days	12 days	20 days
196	21.3	18.6	18.7
197	17.5	20.1	19.6
199	13.6	15.5	18.6

Example 10

A general slurry process synthetic scheme is used to prepare samples of carboxymethyl cellulose from cellulose and is generally described as follows: 15 grams of cellulose is immersed in 400 milliliters of isopropanol in a reaction kettle equipped with a mechanical stirrer, an inert gas inlet, and a temperature control probe. Thirty-five milliliters of water (containing the desired amount of alkali) is then added. The slurry is stirred for half an hour at room temperature (about 23° C.) before adding the appropriate amount of chloroacetic acid (CAA). The reaction is carried out for three hours at 60° C. The slurry is then filtered, the product washed twice with a 70:30 volume-percent mixture (400 ml) of methanol and water, washed once with 400 ml of methanol, and allowed to dry. The recovered carboxymethyl cellulose is then dispersed in water, dried at 30° C., and ground into granules. The particle size fraction between 300 and 600 microns is collected for absorbency testing. The degree of substitution (D.S.) of the carboxymethyl cellulose products is measured by ^{1}H-NMR spectroscopy. The morphological features of dispersions of the carboxymethyl cellulose products is observed by cross-polarized optical microscopy and X-ray diffraction. The AUL tests are performed at 0.3 psi. The aging tests are accomplished by placing the granular samples into a chamber saturated with water vapor (100 percent relative humidity) at room temperature (about 24° C). At certain intervals of aging time, the samples are taken out of the chamber and dried in ambient conditions for two days before doing the absorbency tests. The unused samples are replaced in the chamber for continued aging.

For the following samples, various cellulose pulps or carboxymethyl celluloses are used, as is indicated in Table 22–24. Aqualon's Cellulose Gum CMC-7H4F is indicated by the designation CMC-7H4F. A cellulose pulp commercially available from ITT Rayonier Corp. under the trade designation Porosanier-J, is a southern pine wood pulp having an intrinsic viscosity of about 8.4 deciliters/g and having an alpha cellulose content of about 98.7 percent, is indicated by the designation ITT. A cellulose pulp commercially available from Southern Cellulose Products, Inc. under the trade designation Grade 1050, is a cotton linters pulp having an alpha cellulose content of about 99.2 percent, is indicated by the designation SC. A cellulose pulp prepared using a Kraft process without cold caustic treatment after bleaching, having a viscosity of about 15.3 centipoise and an alpha cellulose content of about 94.6 percent, is indicated by the designation CR#8. A cellulose pulp prepared using a Kraft process from a southern softwood chips, wherein sodium hydroxide is used for a cold caustic treatment after bleaching, having a viscosity of about 19.8 centipoise and a degree of polymerization (number average) of about 1477 is indicated by the designation CR#10. A cellulose pulp prepared using a Kraft process from a southern softwood, wherein sodium hydroxide is used for a cold caustic treatment after bleaching, having a viscosity of about 16.6 centipoise and a degree of polymerization (number average) of about 1368 is indicated by the designation CR#11. A cellulose pulp prepared using a Kraft process from aspen chips without cold caustic treatment after bleaching, having a viscosity of about 41.2 centipoise and a degree of polymerization (number average) of about 1997 is indicated by the designation CR#18. The cellulose pulp used to prepare Sample 143 in Table 9 is indicated by the designation CR#21.

For comparison, water-soluble carboxymethyl cellulose samples are synthesized. Table 22 provides the reaction conditions and the absorbency values of the prepared samples. The samples are all soluble in the testing saline solution and the AUL values are for samples aged at ambient temperature (about 24° C.) and at about 100 percent relative humidity.

TABLE 22

Sample	Cellulose	NaOH:CAA Molar Ratio	CAA:Cellulose Molar Ratio	DS	AUL (g/g) 0 days	12 days	20 days
204*	CMC-7H4F	—	—	0.7–0.8	7.3	7.1	6.5
205*	CR#11	2.2:1	0.75:1	0.78	7.1	7.4	8.9
206*	ITT	2.0:1	1.0:1	0.96	6.6	8.6	8.8
207*	ITT	2.2:1	1.0:1	1.0	8.8	7.6	7.1

*Not examples of the present invention

Samples are prepared using potassium hydroxide (KOH) as the alkali. Table 23 provides the reaction conditions and the absorbency values of the prepared samples. The samples are all translucent or fibrous when dispersed in water.

TABLE 23

Sample	Cellulose	KOH:CAA Molar Ratio	CAA:Cellulose Molar Ratio	DS	AUL (g/g) 0 days	12 days	20 days
208	CR#8	2.0:1	2.0:1	0.92	14.5	—	—
209	CR#10	2.0:1	1.0:1	0.76	14.3	—	—
210	CR#10	2.0:1	1.5:1	1.13	14.0	—	—